



KEYBOARD reports

Waves Gold Native Bundle PLUG-INS FOR MAC & PC

By Francis Preve

Twenty Waves plug-ins on one CD-ROM.

AUDIO SAMPLES

Enigma Bell - [MP3](#) Doppler - [MP3](#)

Enigma Phase - [MP3](#) Dry - [MP3](#)

Enigma Whirl - [MP3](#)



Pros: Huge selection of professional-quality effects. 24-bit/96kHz compatible. Excellent user interfaces and documentation.

Cons: Delays and LFOs not syncable to sequencer clock. Some effects consume considerable CPU power.

\$1,299, Waves, 865-546-6115, www.waves.com

Visit any major studio and ask about their favorite effect plug-ins. Chances are, the responses will include a number of Waves products. Since 1993, Waves has created state-of-the-art plug-ins for nearly every major sequencing or recording platform. Heck, they even make a hardware version of their L1 Limiter. To call them industry leaders would be an understatement.

It's not surprising that there's a lot of buzz about their new Gold Bundle. At the engine level, Waves has upgraded all of these effects to version 3.0, which introduces 88.2/96kHz support along with a few user interface niceties. For \$1,299, you get nearly every Waves plug-in ever made in one easy-to-install package. This is remarkable when you consider that specialized plug-ins like the C4 Multiband Compressor and the Renaissance Collection list for \$400 and \$500 respectively. Both are included in the Gold Bundle. This is a great value.

Over the years, *Keyboard* has reviewed quite a few of the plug-ins included in this collection, so if you want more details, check out the following reviews: Q10 (July '94), PAZ (Oct. '97), EasyWaves (Sept. '98), Renaissance EQ (March '99), ProFX Bundle (Fall '99), C4 (Feb. '00).

[Ed. Note: The PS22 PseudoStereo plug-in, which is part of the Waves Gold bundle, was excluded from this roundup due to space constraints.]

Installation

The installer is standard-issue and easy to use. Just pop the CD-ROM in, click on the appropriate selections, and the plug-ins are installed.

Authorization is another matter entirely. After years of dongle-based copy-protection schemes, Waves has recently ditched the dongle and switched to challenge/response authorization. The authorization process can take place entirely online at the Waves website, without having to deal with office hours, email, or long hold times. Users without Internet connections will no doubt be miffed at the inconvenience of having to mail in their registration cards (or call Waves directly), but there's a 14-day grace period so you can get busy immediately. The 14-day period also serves as a fully functional demo period for the entire Gold package.

Documentation

The Gold Native collection includes five beautifully written tomes which cover every aspect of its functionality. As an added bonus, there are a few terrific essays, FAQs, and tutorials on essential engineering skills such as EQing and compressing. These manuals are a terrific educational resource for novices and pros alike. In an era where manufacturers routinely cut corners by using electronic documentation, the Waves approach is refreshing.

Working with Waves

Plug-ins can be accessed via the WaveShell, a universal module that provides a menu of every Waves plug-in installed on your system, or you can call up individual plug-ins. Almost every plug-in comes in a variety of flavors, each optimized for either insert or send processing, with mono, stereo, and mono-to-stereo versions available. Waves also includes slimmed-down versions of CPU-intensive plug-ins such as UltraPitch and the Q10 equalizer, which is a big plus if you're running a mid-range or older computer.

The only limit to the number of simultaneous effects available are your CPU/RAM and the inherent specs of your sequencing environment. On my G3/300, I was easily able to run five to ten plug-ins simultaneously in Cubase if I was careful with my choices and avoided certain CPU-intensive options (details below).

Waves UI designers deserve a round of applause for their user interface. Most parameters have visual components; EQ is displayed in graphic curves with movable frequency points. Pan and volume processing is usually accompanied by a visual stereo field display for each source. Voices and outputs are color-coded for easy, intuitive programming. Most importantly, the UI approach is consistent from plug-in to plug-in. Once you've used a few, learning the rest is a piece of cake.

TrueVerb Room Emulator

As acoustic emulators go, TrueVerb is top-notch. Rather than just letting you dial in a reverb type and adjust a few parameters to taste, TrueVerb provides a clean slate and some excellent graphic tools for you to design the characteristics of your environment -- as well as the position of the listener. Tweakers are going to love this approach.

If you're a preset-monger, don't worry. TrueVerb includes a great set of factory patches that covers a wide range of applications, from smooth plates to the usual stadiums, churches, and tight acoustic spaces. All the familiar reverb parameters are available: pre-delay, decay time, and room size, along with a few not-so-common tools such as density, dimension, and distance. Room characteristics such as multi-mode damping and early reflection absorption allow power users to get a real handle on the acoustic details of an environment.

The overall sound of TrueVerb is smooth and surprisingly realistic. I wouldn't hesitate to put this reverb on a solo acoustic performance or a *cappella* track. This is a terrific plug-in for day-to-day reverb needs. Fortunately, its processor overhead is manageable -- a big plus.



Enigma

Part phaser, part flanger, part ring mod, part delay, part resonator, and completely over-the-top, Enigma is just what the doctor ordered if you're looking for a new sound for your next techno masterpiece or sci-fi soundtrack. The plug-in consists of a two- to 12-pole modulated comb filter followed by a cluster of early reflection generators, which serve as a resonator/delay. Part or all of the frequency spectrum that's output by the resonator is then fed back into the comb filter. The results range from classic phaser whooshes and spaced-out filtered delays to FM-esque bell harmonics superimposed on the original signal. And I'm only scratching the surface.



Adjustable parameters include comb filter depth, number of notch pairs, notch frequencies, LFO rate (adjustable in Hz or BPM), LFO shape (sine, triangle, saw up, saw down, and square), and LFO depth. The parameters for the resonator section include delay time (resonator reflections), decay time, and density (stereo spread and diffusion of the delays).

Words that come to mind when noodling with Enigma are psychedelic, techno-organic, metallic, and otherworldly. It's not an effect you'll use every day, but when you do, your audience will remember it.

Doppler

Most attempts at Doppler simulation consist of amplitude, pitch, and pan shifting via LFO or envelope. Sometimes you get lucky and find a combination of settings that does the trick, but more often than not you're in the land of cheesy effects. Not so with *this* plug-in.

Waves has done their physics homework and come up with a Doppler tool that's very authentic-sounding. You set the start and end positions via a graphic UI that shows the position of the listener, adjust the total time for the fly-by, and set the time you want the sound source to take to reach the listener. From there, you can fine-tune the environment -- air damping, reverb, pan range, and pitch shift -- until you have exactly the effect you need.



In my experiments, I stumbled on a few non-traditional uses for Doppler effects. Sure, it's an obvious choice for unusual auto-panning, but it's even better for simulating the physics of scratching. I took a drum loop, started with the "Jerky Tape Machine" factory preset, made a few tweaks, and bingo: DJ FAP7 is born.

This is the best Doppler plug-in I've heard. Post-production facilities are going to love it.

MetaFlanger

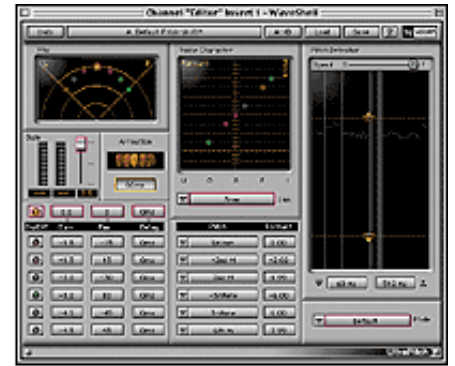
MetaFlanger sports a surprisingly wide array of phase/flange/chorus effects. The included presets feature everything from nice Mutron Bi-phase effects and watery choruses to wobbly early reflection emulations. The "Queenguitar" pitched flange and Ampex 440 tape flange emulations are standouts.



Delay time ranges from 0.1 to 50.0 milliseconds. The effect can be switched to "tape" mode, which adds a touch of warmth to the effect. Feedback is fully adjustable and can be inverted. A high- or lowpass filter can be applied to the processed signal, with the cutoff frequency adjustable from 100Hz to 20kHz. The tape mode also uses dual delay lines (instead of one) so you can achieve true "through the null" cancellation.

LFO rate can be adjusted from 0Hz to 20Hz, and can be linked to modulation depth, interestingly. Tempo synchronization would have been a valuable addition. The LFO offers a choice between sine and triangle waves, but square is oddly absent. Lastly, the stereo field can vary from 180 degrees (full) to 0 degrees (mono). A nifty faux-LED indicator shows the current stereo setting, providing a nice bit of visual feedback. As flangers go, this one's superb.

This harmonizer plug-in comes in one-, three-, and six-voice versions and features both pitch and formant shifting, which allows you to change the apparent gender of a voice. Each voice can be pitch/formant-shifted discretely and turned on or off -- there's even a handy interval selector with a keyboard pulldown for quickly setting intervals. Volume and pan controls are also provided for each voice. An "animation" control randomly delays each voice by a few milliseconds to simulate multiple singers. The scrolling waveform viewer allows realtime adjustment of the frequency range to be analyzed and shifted, as well as the speed of the pitch-shifting response. Formant tracking also includes a selection of preset response curves, each tailored to a specific type of instrument or voice.



I was able to quickly achieve effects ranging from dense harmonies to super-fat detuning. It's even a blast to change the formants of a voice *without* adjusting the pitch, though at the extreme ranges this created some bizarre artifacts with certain vocals and instruments. I'd love to see Waves include a way to tune the overall response to specific keys and modes in a future release. How realistic is the sound of the harmonies? Very, but again, provided you stay within a reasonable range.

In general, this plug-in is fairly processor intensive, but that's a small price to pay for this level of flexibility.

SuperTap

The SuperTap delay comes in two flavors: two- and six-tap. Each tap has its own multimode EQ/filter -- as does the feedback loop -- which is terrific for everything from emulating tape delay damping to unusual highpass/bandpass effects. Delay modulation is global for all taps and has a maximum range of 10ms and 20Hz. The visual pan tool for each tap is color-coded and a joy to work with.



On the other hand, the BPM-based delay control is hard-wired to single millisecond increments (no decimal places), so exact BPM matching can be hit-or-miss. This is offset slightly by the fact that fine-tuning can be adjusted in sixteenth-note increments per delay, but this is no substitute for true tempo-synced delays.

MondoMod

MondoMod is one of those nifty little gadgets that at first glance appears a little goofy, but quickly grows into something you can't get by without. It seems to have been initially designed as a rotating speaker emulator -- and make no mistake, it can do a fair approximation if you can live without that gorgeous Leslie distortion. But there's more to it than that.



MondoMod features LFO-modulated control over three parameters: amplitude, pitch, and stereo placement in a 360-degree circle. The LFO speed can be adjusted in Hz or BPM increments, but as with the other Waves

plug-ins, it cannot be directly synced to tempo. The LFO also offers sine, triangle, square, saw up, and saw down, which widens the modulation options nicely.

Since the factory presets focus mainly on vibrato, panning, and tremolo effects, I was only moderately impressed with this plug-in when I first turned it on. It wasn't until I started experimenting that it came to life. Rich whirling choruses and wobbly Dopplers abounded, and full 360 degree psychoacoustic panning effects were nearly impossible to avoid. While MondoMod may not be perfect for every track, it has that indefinable "something" that makes it wonderful for animation when a chorus or flanger is overkill. It's also ideal for taking a mono send and "stereoizing" it before sending to your reverb.

L1 Limiter/+L1 Ultramaximizer

Hard limiting is one of those tools that producers sometimes overlook, but its role in creating polished-sounding tracks should not be underestimated. Three simple parameters -- threshold, output ceiling, and release rate -- make up the L1 Limiter, whereas the +L1 Ultramaximizer adds Waves' IDR dithering and shaping tools along with input level controls. With careful manipulation, these plug-ins can improve everything from single tracks to complete mixes -- and with moderate processor load. The L1 series has been a staple in digital mastering houses for years, and its inclusion in this collection is a godsend. If you're searching for the secret to punchy, in-your-face mixes, the +L1 may be the panacea you've been looking for.



AudioTrack

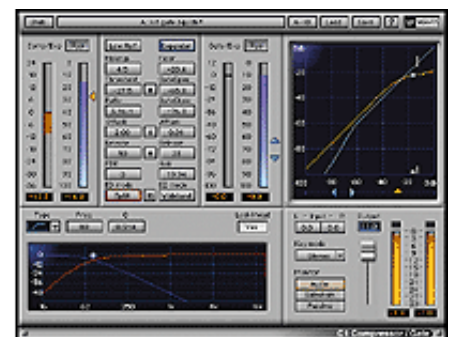
The EQ and dynamics plug-ins included with all-in-one sequencing apps often fall short of professional quality, but AudioTrack does not disappoint. Consisting of a four-band parametric EQ, followed by compression, followed by a gate, AudioTrack is a no-frills tool that delivers. I found that the EQ was remarkably transparent on all but the most demanding tracks. I fixed a problematic vocal on a remix I was working on in about two minutes -- no small feat. The compressor covered all of the basics without a lot of coloration, and the gate did its thing with a minimum of fuss. This is one of those bread-and-butter tools that can be applied to a bunch of tracks in a mix without bringing your system to its knees.



C1 Parametric Componder

The C1 is a full-featured dynamics plug-in that boasts three simultaneous processors: compressor/expander, gate/expander, and sidechain filter.

Compressor/Expander: All the usual parameters -- threshold, ratio, attack, and release -- are available. The release function can also be set to respond dynamically to changes in program content, with shorter times for fast transients and longer times for sustained passages. This is a great feature, as it takes a lot of the guesswork out of getting a transparent effect. Expander mode kicks in when compression ratios are set to negative values. In my experiments I discovered an interesting way to punch up a drum loop by setting the ratio to 0.5:1. This made the snare drum really pop.



Gate/Expander: Waves chose to provide open and close parameters (as opposed to threshold and ratio), along with attack, release, and hold time. Setting up precise gates is a breeze. Unlike many other gate plug-ins, the C1 includes a key mode that allows one side of a stereo signal to trigger a gate for the opposite channel. This is a great way to quickly achieve those classic rhythmic, stuttering gate tricks so popular in electronica.

Sidechain: Either or both the compressor and gate can be assigned to the filter sidechain. For the uninitiated, sidechain filters allow dynamics processors to respond to specific frequency ranges, allowing for specialized effects such as de-essing, bass compression/enhancement, and frequency-specific gating effects. The look-ahead function analyzes the frequency content of a track before it arrives at the C1, which allows for very precise processing. While look-ahead adds significant processor overhead to the C1, this is one of the those functions that can only be achieved in the digital domain, and is extremely useful for problematic tracks with rapidly shifting dynamics.

Clean and transparent, the C1 has a useful lineup of presets, ranging from classic instrument and vocal compression with de-essing to specialized setups for presence enhancement.

MaxxBass

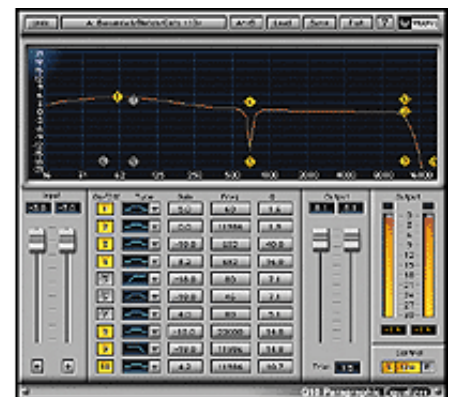
MaxxBass is sub-harmonic enhancer with a straightforward and flexible interface. Built-in dynamics processing and highpass filters with decay make it easy to tailor the response of the sub track. This is a great tool for punching up thin drum loops or simulating the proximity effect of close-miked acoustic instruments.



Since the enhancement algorithm is harmonically based, it can readily be applied to bass lines and other tuned material. The main harmonic control allows you to shift the harmonics *above* the bass line, so an octave (or higher) doubling effect can be achieved. I applied this to several bass synth parts and got some terrific classic house textures. Dance music producers are likely to dig this plug-in.

Q10/Q4 Paraphrastic EQ

Since its introduction back in '94, the Q10 Paraphrastic Equalizer has become a staple in both studios and mastering houses. Part of its appeal is the clarity of its sound; as with many high-end digital EQs, there's surprisingly little signal coloration (other than the EQ itself). Add to that complete control of up to ten bands of EQ and/or filtering and you begin to understand why this plug-in remains so popular.



The Q10 excels at everything from radically altering a single track to precise adjustments of a final mix during mastering. Waves has thoughtfully included the Q4 version of this EQ, which is less processor-hungry and nearly as flexible, though it only has four bands of EQ/filtering. One added benefit is that the equalizer uses only the processing needed for the bands that are turned on, so even if you use the Q10 and turn on only two bands, that's all the CPU power that's used.

C4 Multiband Parametric Processor

Sometimes single-band compression just isn't enough. For mastering purposes, it's almost essential to have discrete control over several frequency ranges, since single-band compression has a tendency to react to the low end and ignore the highs and mids. C4 consists of four discrete compressors fed by a four-way crossover, and can achieve results that are impossible to obtain any other way. The user interface really shines, as nearly every aspect can be tweaked graphically. I was up and running -- with wonderful results -- instantly.



The C4 is also a fantastic tool for refining vocal tracks, since each frequency range is completely independent. For one of my recent voiceover sessions, two bands covered the main compression tasks; the upper-mid band restrained some shrillness, and the top band handled de-essing. For mastering, the C4 is revered for rescuing bad mixes. It's a piece of cake to get a punchy low end, tight mids, and airy, spacious highs.

Granted, this plug-in is a consummate CPU hog, but that's the price of this type of power and flexibility. If you plan to use the C4 on several individual instruments in a mix, make sure to set aside some time to render each track individually, then reimport them into your song. It's a bit tedious, but the results are worth it.

S1 Stereo Imager

Stereo imaging is something of a black art, even for seasoned engineers. It takes skill and a fair amount of physics knowledge to produce great results that aren't super-phasey. There are a lot of "stereo enhancement" plug-ins and hardware devices out there, and while many are excellent, some can wreak havoc with your finished masters.



Not so with the S1. Waves really nailed the essentials of tweaking the stereo field without damaging the results in the process. When the S1 is set up correctly -- and it's a breeze to do so -- it's almost as if the clutter has been sucked out of your tracks and replaced with airy transparency. That's not to say this plug-in is an all-purpose stereo Band-Aid, but if a stereo track is getting lost in your mix (or your mix is getting lost in your mix), the S1 could be the answer to your woes.

The basic parameters are gain and width, but Waves also included asymmetry, rotation, and shuffle for mixes that require additional stereo field correction during mastering. On individual tracks, I found these extra tools an interesting alternative to panning if the track already contained a stereo effect. Also included is an MS converter for converting left-right input to Mid-Side output.

DeEsser

It's hard to get too worked up over a de-esser, and this one has a glamour factor of zero. But if you're working in a field that deals with spoken word performances (hip-hop producers take note), the Waves De-esser is something to get excited about.

Waves wisely stuck to the essentials with this plug-in. There are two adjustable parameters -- threshold and sidechain frequency -- but that's all I needed to get the job done. One example: I pulled up a super-sibilant voiceover track that gave me headaches some time back and applied this plug-in. Voilà. Situation contained. DeEsser is a terrific tool that does one thing and does it beautifully.



Tip of the month: If you ever find yourself saddled with a shrill or tinny drum loop with excessive hi-hats or cymbals, try slapping a de-esser on it.

Renaissance Reverb

This plug-in is a class act. Choose from hall, room, chamber, plate, reverse, gated, and non-linear algorithms, along with unusual extras such as EchoVerb and ResoVerb. Parameters include predelay, time, size, diffusion, and decay. There are reverb damping controls over frequency and ratio for both highs and lows. An additional pair of high and low shelving EQs are also provided for modifying the overall processed signal. Output controls include separate parameters for early reflections, reverb, wet/dry mix, and overall gain.



How does it sound? The acoustic spaces (halls, rooms, chambers) are smooth and creamy with a hint of warmth. The plates have an authentic fizziness without the resonant artifacts often found in lesser emulations. The reverse, gate, and non-linear reverbs are flexible and distinctive. And the exotic extras like EchoVerb and ResoVerb have enough spice to jazz up the most mundane performances.

All this gorgeousness comes at a price, however. When I first loaded the plug-in, I was flabbergasted to watch my CPU usage meter jump from 5% to at least 65% -- and that was with no other plug-ins or virtual instruments instantiated or applications running in the background. Just my G3/300, Cubase, and this stunningly beautiful cycle-sucking monster staring me in the face. Time to get a faster Mac, I guess. It's definitely worth it.

Renaissance Compressor

The Renaissance Compressor is optimized for vintage compression effects. The essential compression parameters (threshold, attack, release, ratio) are included, with the added bonuses of "electro/opto mode switching" and a warm/smooth control that emulates overdriven tube warmth at higher compression settings. Also included is Waves' ARC mode, which dynamically adjusts release time based on program content. As with the C1 Compressor, the Renaissance Compressor will also function as an expander when the ratio control is set to negative values. Really warm-sounding expansion isn't easy to come by, so it's a treat to hear it in a digital sequencing environment.



As analog hardware emulations go, this compressor comes pretty darn close. Waves likes to compare the performance of this plug-in to a classic LA-2A, which I feel isn't far off the mark. There's a "tube-ish" quality to the sound, which may or may not be to your liking. I used this compressor on a wide range of program material and found it useful on almost everything, including complete mixes, as it added a warm, retro feel.

Renaissance Equalizer

Don't be fooled by the apparent lack of parameters to twiddle on this plug-in. It's an EQ, after all, so frequency, gain, Q (bandwidth), and EQ mode are the only tweakable settings. What sets the Renaissance EQ apart from other digital EQs I've encountered is its warmth and sweetness. If I had to compare the overall sound to a specific analog EQ, I'd whisper "Neve." What also amazed me was how *forgiving* these processors were at extreme settings. These are brilliant-sounding emulations and about as close to analog as you're likely to get for the foreseeable future.



There are two-, four-, and six-band versions of the plug-in, each requiring progressively more processing power. Each band can be switched to fully parametric mode or shelving. Truly unusual curves can be created by using shelving EQs in the middle frequency ranges and parametrics at the outside ranges. The top and bottom bands can also function high- or lowpass filters. Powerful.

PAZ Psychoacoustic Analyzer

(Mac Gold Native only)

Wanna know what's going on under the hood of your mixes? Not the technical or musical details, but the raw physics of it all? PAZ is the ticket.

Though it's been around since 1997, PAZ has stood the test of time simply because it does one thing and does it very well. PAZ provides a graphic display of the frequency response, stereo image, out-of-phase elements, and overall levels of your audio in real time. The frequency window (RTA) displays 52 bands, ranging from 10Hz to 20kHz. The view can be tailored to reflect the peculiarities of the human ear via three curves (A, B, and C weighting) and can operate in peak or RMS mode.



The stereo field analyzer displays activity across the left-right panorama, and can show spikes that are out-of-phase. This is a terrific way to put a microscope on your stereo image and double-check to see how the mix or instrument will hold up in a mono environment.

Do your mixes sound deficient in some areas when compared to commercial releases? Import a few of your favorite tracks into your audio sequencer and analyze them with PAZ. Are you concerned that your studio acoustics or monitors are deceiving you? Inspect your mixes with PAZ and see if what you think you're hearing is translating to the actual output.

Conclusions

Make no mistake, the Waves Gold Native Bundle will give you Mercedes-class plug-in power with all the trimmings. Granted, you'll need a top-of-the-line system to fully take advantage of multiple CPU-intensive plug-ins in a mixing environment. But I feel that's a small price to pay for the sheer quality, flexibility, and ease-of-use that these processors deliver.

While the \$1,299 price tag may seem steep at first, you're getting nearly every Waves product, plus comprehensive printed documentation, stellar ease-of-use, and a set of processors that won't be obsolete any time soon... if ever. Don't forget, the Gold bundle is compatible with RTAS, VST, MAS, and DirectX native formats, as well as DigiDesign's Digi 001. [Ed. Note: The Gold package is also available for TDM. This review is of the native Gold package, not Gold TDM, which is Mac-only and sells for \$2,600.] Since the price of purchasing these plug-ins individually would easily extend well into the thousands, this package is a definite Key Buy winner.

For Vital Stats, see the March 2001 issue of *Keyboard*.

KEY INFO #122

Media technologist FRANCIS PREVE has remixed electonica acts Orbital, Utah Saints, and Beborn Beton. Get the facts at www.fap7.com.

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